

STATE OF VERMONT

2014 INVASIVE FOREST PEST ACTION PLAN

Vermont Department of Forests, Parks and Recreation
Vermont Agency of Agriculture, Food and Markets

This is an action plan for Vermont state agencies, responsible federal agencies, and partner institutions when an invasive forest pest is detected in Vermont. It identifies roles and prioritizes actions. It also covers statutory authorities, lists potential stakeholders and funding sources, outlines an incident command structure, and provides a framework for documenting pest-specific information. This is a working document to be updated as necessary. Detailed information for responding to individual pests of concern is in pest-specific sections.

Purpose

To prevent the establishment of invasive pests, or limit their spread within Vermont, in order to reduce economic, social, and environmental impacts.

To provide an outline for interagency coordination, acquiring information, rapid response, and public involvement.

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I. All-Pest Readiness and Response Framework

I.1 Authorities

Responsibility for plant pest activities is shared between the Department of Forests, Parks & Recreation and the Agency of Agriculture, Food, & Markets under Title 6 §1031.

...the secretary of agriculture, food and markets shall have jurisdiction over plans for the survey, detection, and management of agricultural plant pests, and the commissioner of forests, parks and recreation over plans for the survey, detection, and management of forest pests. ... The two officials shall cooperate with each other on jointly operated projects to avoid duplication of efforts or duties.

Survey work by the Agency of Agriculture, Food, & Markets is authorized under Title 6 §1031 et seq. and for the Department of Forests, Parks, & Recreation under Title 6 §1033 and Title 10 §2661.

The secretary ... shall have jurisdiction over plans for the survey, detection, and management of agricultural plant pests...adopt and amend rules as he or she deems necessary... excluding private domiciles and curtilage, may enter any premises, public or private, as may be necessary to carry out the provisions of this chapter... may conduct detection and abundance surveys for plant pests of an injurious nature...to determine the necessity for establishing control practices.

The commissioner shall make surveys... of forest pests. For this purpose duly designated representatives of the commissioner may enter at reasonable times on public and private lands....

Control activities by the Agency of Agriculture, Food, & Markets are authorized under Title 6 §1033 and for the Department of Forests, Parks, & Recreation under Title 6 §1033 and Title 10 §2663.

When the secretary determines that...the pest dictates immediate action, he or she may proceed with a plan of eradication or suppression.

The commissioner...may apply measures of infestation control...anywhere in the state to any trees, timber, plants or shrubs thereon harboring or which may harbor the forest pests.

Quarantines may be established by the Agency of Agriculture, Food, & Markets under Title 6, §1034 and §1037 and by the Department of Forests, Parks, & Recreation under Title 6 §1034.

The secretary may establish and maintain quarantines...concerning the planting, exposing, sale, importation and transportation of all...articles capable of carrying plant pests.... The secretary may issue cease and desist orders ... to enforce this chapter...

Other pest control functions of the Agency of Agriculture described in Title 6 include cooperating with other government agencies (federal, state, local), entering into compliance agreements, issuing permits or cease and desist orders, soliciting funds, assessing penalties, and providing compensation for the destruction of cultivated plants.

Other pest control functions of the Department of Forests, Parks, and Recreation described in Title 10 include entering into cost-share agreements with landowners.

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I.2. Roles

Lead Agency Roles

Vermont Department of Forests, Parks and Recreation and the Vermont Agency of Agriculture, Food and Markets

- Conduct surveys
- Implement pest eradication and suppression
- Establish and maintain quarantines
- Provide information to the public
- Provide laboratory support

Vermont Department of Forests, Parks and Recreation

- Coordinate incident command system, if necessary
- Provide information on forest resources and ownerships
- Communicate with forest industry, managers, and landowners
- Prepare environmental assessments
- Lead forest management, wood utilization, and restoration activities
- Control pests on state lands
- Maintain aerial survey capability
- Provide liaison with the US Forest Service to request assistance and funding
- Collaborate with forestry agencies in other states

Vermont Agency of Agriculture, Food and Markets

- Inspect and regulate movement of nursery stock
- Issue and review international, interstate, and intrastate plant and plant pest movement permits
- Review APHIS permits for introduction of biological control agents
- Regulate pesticide registration and use
- Maintain a Pesticide Advisory Council
- Provide information to national pest reporting systems
- Collaborate with USDA and other state and local agriculture agencies
- Represent Vermont on National and regional Plant Boards

Roles of Other Principal Agencies and Partner Institutions

USDA Animal and Plant Health Inspection Service (APHIS) Plant Protection and Quarantine

- Confirm species identifications
- Implement emergency measures at the federal level to prevent spread
- Administer quarantines on interstate and international movement of regulated materials
- Develop and improve survey and control protocols and measures
- Maintain and fund Cooperative Agricultural Pest Survey (CAPS) program and surveys
- Maintain cooperative agreements with state agencies for inspection and issuance of agricultural export certificates
- Provide international liaison services between individual states and foreign regulatory bodies
- Provide emergency funding for survey and response, as appropriate

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USDA Forest Service

- Provide current information and technical assistance for survey and control activities
- Research and develop new technologies
- Implement survey and control measures on federal lands
- Provide information and educational materials
- Coordinate interstate initiatives, as appropriate
- Assist in coordinating survey and detection activities
- Assist with remote sensing technology
- Provide liaison with the Environmental Protection Agency for environmental assessments
- Provide funding through Cooperative Forest Health and other programs

University of Vermont

- Confirm species identifications
- Coordinate Forest Pest First Detectors
- Maintain a Vermont Invasives website
- Conduct research on plant and plant pest biology, ecology, impact, and management
- Share results of relevant research with responsible agencies, accommodating legitimate interests of investigators
- Participate in scientific review
- Provide information through Master Gardener and other programs

Vermont Agency of Natural Resources

- Assist with media contacts
- Participate in environmental impact reviews
- Assist with solid waste disposal strategies
- Coordinate invasive species programs within ANR
- Provide input on introductions of biological control agents

I.3. Incident Management

Structure

State response to highly destructive pest threats will be through a unified incident command system, shared between the Department of Forests, Parks, and Recreation and the Agency of Agriculture, Food, and Markets. The Forest Health Program Manager and the Plant Industry Section Chief, or their designees, will be agency leads and perform unified command functions.

The local USDA APHIS State Plant Health Director and US Forest Service Forest Health Group Leader will be notified to determine if there is a federal role. In the case of a federally regulated pest, the project leader may be selected by APHIS, who will work in consultation with the two state agency leads. If leadership will be at the state level, a multiagency coordination system will be set up with a designated lead from the responsible federal agencies, and the agency leads will serve coordinator functions.

Panels to provide additional technical advice may be convened as necessary.

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Functions

Unified Command with Multi-Agency Coordination System, if appropriate

Establish priorities and objectives
Approve response plan
Mobilize teams as needed
Ensure policy review
Liaison with other agencies
Convene technical advisory groups
Coordinate safety procedures

Operations

Conduct Surveys
Support quarantine actions
Implement controls
Evaluate response effectiveness
Manage wood utilization
Conduct restoration

Planning

Outline options
Determine resource needs
Update response plans
Conduct planning meetings
Implement training & certification
Manage data
Apply for grants
Produce maps
Gather technical information
Environmental impact review
Develop survey methods
Identify stakeholders
Facilitate research activities

Logistics

Obtain supplies
Coordinate staffing
Establish communications systems
Arrange transportation, facilities, and lodging

Finance

Track expenses
Administer grants

Communications

Reach out to stakeholders
Prepare and disseminate informational materials
Work with landowners & municipalities
Update cooperating agencies
Contact media

I.4. Actions Prior to Detection

Agency leads will review this plan annually for needed changes, identify pests that warrant supplemental work plans, and ensure that special pest work plans are updated. Agency leads will also review existing efforts for early detection of highly destructive pests.

A Forest Pest First Detectors program has been implemented to provide support for survey, outreach, and preparedness in local communities. Support for this program will continue, including additional trainings for new volunteers.

I.5. Actions Upon Detection

Confirm Identification

Initial screening is by state specialists. Responsible agency leads will be notified. Verification may be required by USDA APHIS.

Initiate Incident Response

The agency leads will collaborate to communicate with leadership within the state and meet with local officials. As necessary, identify technical advisors and stakeholders, seek funding, and fill other roles in the incident command system. The Vermont Forest Pest Roundtable may be convened to coordinate next steps.

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Take Necessary Emergency Measures

Agency leads will determine if there is an immediate risk of spread which may justify emergency eradication or restrictions. State of Vermont emergency rules may not remain in effect for more than 120 days, but permanent rules may be proposed simultaneously with emergency rule adoption (3 V.S.A. § 844). Federal emergency measures may be authorized under the Plant Protection Act and other rules.

The Northeastern Forest Fire Protection Commission is available to assist in mobilizing crews and resources through the Forest Health Working Team.

It may be necessary to designate sites for immediate disposal of regulated material.

Survey to Determine Extent of Infested Area

If the extent of the infestation is unknown, a delimiting survey will be conducted to define the area subject to existing quarantines and help clarify management alternatives. The survey report will indicate if eradication may be an option.

Conduct Outreach

Affected landowners, resource managers, stakeholders, local governments and planning commissions, agency staff and partner groups with associated responsibilities, and technical advisors will be notified, and input will be sought regarding management actions and impacts.

Information will be updated on the Vermont Invasives website: vtinvasives.org. Forest Pest First Detectors are available to assist with outreach, including follow-up on pest reports.

Assess Management Options

Decisions include:

1. Whether or not to proceed with eradication or suppression treatments,
2. Which treatments are appropriate, considering chemical, biological, mechanical/physical, and cultural methods,
3. Whether treatment will be voluntary,
4. Whether to initiate or modify state regulations.

An environmental and economic assessment will be conducted. This will follow National Environmental Policy Act requirements, if applicable. The assessment will include brief discussions of the need for the proposal, alternatives, the environmental impacts of the proposed action(s) and alternatives; and a listing of agencies and persons consulted.

Proposed pesticide use will be reviewed by the Agency of Agriculture, Food, & Markets, Agrichemical Management Section. In addition, the Vermont Pesticide Advisory Council is the advisory group to state agencies having responsibilities for the use of pesticides, and may review proposed pesticide uses to assess potential effects, and where necessary make recommendations for greater safety and efficiency.

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A permit must be issued by USDA APHIS, with approval from the Plant Industry Section of the Agency of Agriculture, Food, and Markets, prior to releasing organisms for biological control. Proposals for release should also be reviewed by appropriate subject area specialists at the Agency of Natural Resources or elsewhere.

The Dept of Fish and Wildlife's Wildlife Diversity Program will be consulted to evaluate potential impacts of proposed controls on rare, threatened or endangered species.

For federally regulated pests, entire states may be quarantined, unless an internal state quarantine regulates movement between infested and non-infested areas. Quarantined areas may be released following a specified number of consecutive years of negative survey, depending on the pest species. Release of the quarantined area will occur with the consensus of the cooperating regulatory agencies. Compliance agreements may be made with businesses that remove, ship, or receive regulated materials.

Response to invasive pests in Green Mountain National Forest Wilderness Areas is directed by the Wilderness Act and the Forest Service Manual.

An operations plan will be prepared, including human and environmental safety components, public notification, and quality assurance.

Implement Management Actions

A notice of proposed control measures, including location and approximate time, must be published in a local newspaper (Title 10, §2662). Responsible agencies may consider landowner compensation (Title 6, §1040).

Conduct Follow-up

Treatment areas will be resurveyed to assess efficacy. Restoration actions, if any, will be implemented.

I.6. Funding

Base programs are cost-shared by USDA APHIS and Forest Service cooperative agreements and state funding. These agencies may provide emergency funds for selected pest activities, and for restoration.

State emergency funds can be requested by the secretaries of the responsible agencies.

By statute, control measures can be cost-shared with landowners. Other alternatives include volunteer hours provided through partner groups and control measures provided at no cost as part of demonstration or research efforts. The secretaries may solicit funds from other federal, state and local agencies or private organizations, as available.

I.7. Additional Information

I.8. Appendix: State Statutes

Title 6: Agriculture

Chapter 84: Pest Survey, Detection And Management

§ 1030. Definitions

Whenever used or referred to in this chapter, unless a different meaning clearly appears from the context:

- (1) "Beneficial organism" means any organism which, during its life cycle, is an effective pollinator of plants, a parasite or predator of pests, or otherwise beneficial.
- (2) "Biological control agent" means any living organism applied to or introduced into the environment that is intended to function as a controlling agent against another organism.
- (3) "Secretary" means the secretary of agriculture, food and markets, or his or her designee.
- (4) "Compliance agreement" means a written agreement between the department and any person engaged in growing, handling or moving regulated articles, plant pests, plants, parts of plants, or plant products regulated under this chapter, where the person agrees to comply with stipulated requirements.
- (5) "Agency" means the Vermont agency of agriculture, food and markets.
- (6) "Genetically modified organism" means any organism altered or produced through genetic modification from a donor, vector, recipient organism, or by other means using modern molecular techniques.
- (7) "Host" means any plant pest, plant, plant product or other organism upon which a pest or beneficial organism is dependent for completion of any portion of its life cycle.
- (8) "Infested area" means an area which has been determined to have an established pest population.
- (9) "Permit" means a document issued by the secretary to provide for the importation of plant pests, biological control agents or regulated articles into the state and their movement within the state to restricted destinations for limited handling, utilization or processing.
- (10) "Person" means any individual or combination of individuals, partnership, corporation, company, society, association, governmental organization, university or other entity and each officer, agent or employee.
- (11) "Plant and plant products" means trees, shrubs, and vines; forage, fiber, and cereal plants; cuttings, grafts, scions, buds and lumber; fruit, vegetables, roots, bulbs, seeds and wood; and all other plants, parts of plants, and plant products.

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(12) "Plant pest" means any living stage of: insects, mites, nematodes, slugs, snails, protozoa or any other invertebrate animals; bacteria, fungi, mycoplasma or other parasitic plants, weeds or reproductive parts thereof; viruses or any organisms similar to or allied with any of the foregoing; and any genetically modified organisms or biological control agents that may directly or indirectly injure or cause disease or damage to any beneficial organisms, plants, parts of plants, or plant products.

(13) "Quarantine" means a legal declaration by the secretary to prevent the spread of highly injurious plant pests which specifies the plant pest, plants, parts of plants, plant products or the regulated articles, conditions governing movement, the area or areas quarantined, and any exemptions.

(14) "Regulated article" means an article of any character carrying or capable of carrying a plant pest. (Added 1995, No. 68 (Adj. Sess.), § 2; amended 2003, No. 42, § 2, eff. May 27, 2003.)

§ 1031. Functions of secretary of agriculture, food and markets and commissioner of forests, parks and recreation cooperation

Under the provisions of this chapter, the secretary of agriculture, food and markets shall have jurisdiction over plans for the survey, detection, and management of agricultural plant pests, and the commissioner of forests, parks and recreation over plans for the survey, detection, and management of forest pests. When the word "secretary" is used in sections 1033 and 1034 of this title, it shall mean either the secretary of agriculture, food and markets or the commissioner of forests, parks and recreation. The two officials shall cooperate with each other on jointly operated projects to avoid duplication of efforts or duties. (Added 1995, No. 68 (Adj. Sess.), § 2; amended 2003, No. 42, § 2, eff. May 27, 2003; 2003, No. 121 (Adj. Sess.), § 87, eff. June 8, 2004.)

§ 1032. Powers of the secretary

The secretary in furtherance of the purposes of this chapter may:

(1) Adopt and amend rules as he or she deems necessary in order to carry out the provisions of sections 1033, 1034, 1035 and 1040 of this chapter.

(2) Appoint assistants, subject to applicable laws and rules, to perform or assist in the performance of any of the duties or functions of the secretary under this chapter.

(3) Excluding private domiciles and curtilage, enter any premises, public or private, as may be necessary to carry out the provisions of this chapter. Whenever practicable, advanced notice of a proposed survey or examination shall be given to the owner or occupant of the property to be entered.

(4) Solicit and receive federal or private funds.

(5) Cooperate with the federal government and any agencies, departments and instrumentalities of the federal government, the state of Vermont and any agencies, departments, divisions or political subdivisions of the state, and any other state or commonwealth and any agencies, departments or political subdivisions of a state or commonwealth, in order to carry out the provisions of this chapter.

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(6) Enter into compliance agreements with any person engaged in growing, handling, or moving regulated articles, plant pests, plants, or plant products. (Added 1995, No. 68 (Adj. Sess.), § 2; amended 2003, No. 42, § 2, eff. May 27, 2003.)

§ 1033. Detection and abundance surveys; eradication and suppression

The secretary may conduct detection and abundance surveys for plant pests of an injurious nature that may be present in the state to determine the necessity for establishing control practices. When the secretary determines that a new injurious plant pest exists within the state or that an established pest requires control and the nature of the pest dictates immediate action, he or she may proceed with a plan of eradication or suppression. (Added 1995, No. 68 (Adj. Sess.), § 2; amended 2003, No. 42, § 2, eff. May 27, 2003.)

§ 1034. Quarantines

The secretary may establish and maintain quarantines and adopt other orders and rules pursuant to 3 V.S.A. chapter 25 concerning the planting, exposing, sale, importation and transportation of all plants and plant products and regulated articles capable of carrying plant pests of an injurious nature in any living stage within the state. (Added 1995, No. 68 (Adj. Sess.), § 2; amended 2003, No. 42, § 2, eff. May 27, 2003.)

§ 1035. Permits

No person may sell, offer for sale, barter, expose, move, transport, deliver, ship or offer for shipment into or within this state any plant pest or biological control agent in any living stage without first obtaining either a federal permit, where applicable, and a state permit from the secretary. A state permit may only be issued after it has been determined by the secretary that the plant pests or biological control agents are not injurious, are generally present already, or are for scientific purposes subject to specified safeguards. (Added 1995, No. 68 (Adj. Sess.), § 2; amended 2003, No. 42, § 2, eff. May 27, 2003.)

§ 1036. Technical assistance

The secretary may provide technical assistance in the area of pest management. Such assistance may include diagnostic services, pest identification and pest management recommendations. The secretary is also authorized to conduct demonstrations, investigations and case studies on pest management strategies. (Added 1995, No. 68 (Adj. Sess.), § 2; amended 2003, No. 42, § 2, eff. May 27, 2003.)

§ 1037. Administrative orders

The secretary may issue cease and desist orders and institute appropriate proceedings on behalf of the agency to enforce this chapter or any rules adopted under this chapter. Whenever the secretary believes that any person is in violation of this chapter or rules adopted under this chapter, an action may be brought in a court of competent jurisdiction to restrain by temporary or permanent injunction the continuation or repetition of the violation. The court may issue temporary or permanent injunctions, or

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other relief as may be necessary and appropriate for abatement of any violations. (Added 1995, No. 68 (Adj. Sess.), § 2; amended 2003, No. 42, § 2, eff. May 27, 2003.)

§ 1038. Administrative penalties

A person who violates any provisions of this chapter or a rule adopted under this chapter may be assessed an administrative penalty by the secretary pursuant to the provisions of section 15 of this title. (Added 1995, No. 68 (Adj. Sess.), § 2; amended 2003, No. 42, § 2, eff. May 27, 2003.)

§ 1039. Confidentiality of trade secrets

The secretary may not make information public which contains or relates to trade secrets, commercial or financial information obtained from a person which is privileged or confidential. However, when the information is necessary to carry out the provisions of this chapter, or any of the rules adopted under this chapter, this information may be revealed, subject to a protective order, to any federal or state agency, or may be revealed, subject to a protective order, at a closed hearing or in findings of fact issued by the secretary. (Added 1995, No. 68 (Adj. Sess.), § 2; amended 2003, No. 42, § 2, eff. May 27, 2003.)

§ 1040. Compensation for destruction

When in the suppression of insect pests or plant diseases it becomes necessary for the secretary to destroy the hosts of such pests or diseases, compensation shall be made as follows: the secretary and owner of lands upon which the plants are destroyed shall agree upon the price to be paid as compensation. The impact of the pest or disease on the fair market value of the plant shall be considered. However, compensation shall not be made for wild or uncultivated trees, plants or shrubbery which are ordered destroyed on account of disease or infestation. When plants have been destroyed and compensation accepted, no other such host plants may be maintained on the premises until all danger from the spread of the pest or disease is past. (Added 1995, No. 68 (Adj. Sess.), § 2; amended 2003, No. 42, § 2, eff. May 27, 2003.)

Chapter 87: Control of Pesticides

§ 1102. Pesticide advisory council established

(d) The functions of the council are:

- (1) To review insect, plant disease, weed, nematode, rodent, noxious wildlife, and other pest control programs within the state and to assess the effect of such programs on human health and comfort, natural resources, water, wildlife, and food and fibre production, and where necessary make recommendations for greater safety and efficiency.
- (2) To serve as the advisory group to state agencies having responsibilities for the use of pesticides as well as to other state agencies and departments.
- (3) To advise the executive branch of state government with respect to legislation concerning the use of various pest control measures.

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(4) To suggest programs, policies, and legislation for wise and effective pesticide use that lead to an overall reduction in the use of pesticides in Vermont consistent with sound pest or vegetative management practices.

(5) To recommend studies necessary for the performance of its functions as established under this section.

(6) To recommend benchmarks with respect to the state goal of achieving an overall reduction in the use of pesticides consistent with sound pest or vegetative management practices, and to issue an annual report to the general assembly, detailing the state's progress in reaching those benchmarks and attaining that goal. The benchmarks should be designed to enable evaluation of multiple indicators of pesticide usage, use patterns, and associated risks. Benchmarks should take into consideration, but shall not be limited to, the following: (A) Reducing the amount of acreage where pesticides are used. (B) Reducing the risks associated with the use of pesticides. (C) Increasing the acreage managed by means of integrated pest management techniques. (D) Decreasing, within each level of comparable risk, the quantity of pesticides applied per acre. (E) Recommendations regarding the implementation of other management practices that result in decreased pesticide use.

Chapter 206: Nursery Inspection

§ 4021. Definitions

As used in this chapter:

(1) "Secretary" means the secretary of agriculture, food and markets or his or her designee.

(2) "Agency" means the agency of agriculture, food and markets.

(3) "Nursery" means all lands, premises and buildings on or in which nursery stock is grown, transported, or offered for sale.

(4) "Nursery dealer" means any person who buys, sells, or distributes nursery stock for commercial gain.

(5) "Nursery stock" means all woody or herbaceous shrubs, trees, plants and vines, including bulbs and rhizomes as well as buds, grafts, scions and other parts capable of propagation whether wild, cultivated or grown under artificial covering. This definition does not include cut flowers or seeds. (Added 1985, No. 57, § 1; amended 1989, No. 256 (Adj. Sess.), § 10(a), eff. Jan. 1, 1991; 2003, No. 42, § 2, eff. May 27, 2003.)

§ 4027. Diseased or infested stock; stop-sale; destruction

(a) Only sound, healthy nursery stock which will maintain its vigor shall be offered for sale. Offering for sale stock which is diseased or infested with injurious pests is a violation of this chapter. Whenever the secretary has reason to believe that any nursery in the state has introduced, installed, sold or offered for sale, diseased or infested stock, the secretary shall inspect that nursery. If, upon inspection, the secretary finds any diseased or infested stock, he or she may order the plants, either individually or in blocks, to be

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- (1) put on stop-sale;
- (2) treated in a particular manner; or
- (3) destroyed according to the secretary's instructions.

(b) Plants ordered destroyed or placed on stop-sale must be clearly separable from noninfested stock. Any order must be confirmed in writing within seven days. The writing shall include the reason for action, a description of the nursery stock affected, and any recommended treatment. Stop-sale tags may not be removed except by written permission of the secretary or upon suitable disposal of the infested plants.

(c) A person issued any order under subsection (a) of this section may appeal that order to the secretary within 15 days after receiving the order. The person shall make an appeal by letter to the secretary, and shall state any grounds and designate the plants affected. (Added 1985, No. 57, § 1; amended 2003, No. 42, § 2, eff. May 27, 2003.)

Title 10: Conservation and Development

Chapter 83: Department Of Forests, Parks And Recreation

§ 2608. Enforcement; penalties; liability

(a) Enforcement of the provisions of this chapter or any regulations or proclamations promulgated hereunder shall be in accordance with the provisions of subsection (c) of section 2822 of Title 3.

(b) A person who violates any provision of this chapter or regulations or proclamations promulgated hereunder, or neglects or refuses to assist a fire warden when called upon to do so as provided in section 2644 of this title, shall be imprisoned not more than 30 days or fined not more than \$ 50.00, or both. Such person shall be liable for all damages resulting from a violation to be recovered in a civil action under this statute by the person injured. (Added 1977, No. 253 (Adj. Sess.), § 1.)

§ 2661. Surveys and investigations

The commissioner shall make surveys and investigations to determine the threat or presence of infestations and control of forest pests. For this purpose duly designated representatives of the commissioner may enter at reasonable times on public and private lands for the purpose of conducting such surveys, investigations and controls. (Added 1977, No. 253 (Adj. Sess.), § 1.)

§ 2662. Control measures

(a) Whenever the commissioner finds that an area in the state is infested or threatened to be infested with forest pests, he shall determine whether measures of control are needed and are available and the area

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over which the control measures shall be applied. He shall prescribe a proposed zone of infestation covering the area in which control measures are to be applied, and shall publish notice of the proposal in one or more newspapers having a general circulation in the area in which control measures are to be undertaken.

(b) The notice shall include a brief description of the location of the proposed zone of infestation and the approximate time when control measures will be executed. (Added 1977, No. 253 (Adj. Sess.), § 1.)

§ 2663. Infestation control; agreements with owners

The commissioner under the provisions of section 2853 of Title 3 may apply measures of infestation control on public and private forest and other lands anywhere in the state to any trees, timber, plants or shrubs thereon harboring or which may harbor the forest pests. The commissioner may enter into agreements with owners of such lands covering the control work on their lands, and fix the pro rata basis on which the cost of such work will be shared between the state and said owner; provided, that the failure of the commissioner to offer an agreement to or execute an agreement with any owner shall not impair the right of representatives of the commissioner to enter on the lands of said owner to conduct control operations. (Added 1977, No. 253 (Adj. Sess.), § 1.)

§ 2664. Cost prorated; agreements

If in any area the owners of a majority of the acreage to be protected from pests execute agreements with the state, the commissioner shall be authorized to carry out control work on other adjacent or interior holdings, which, if uncontrolled, would cause a re-infestation of the controlled area. The cost of control work on such areas may be prorated among the owners who have executed agreements on the same basis as for their own lands, if they agree thereto. (Added 1977, No. 253 (Adj. Sess.), § 1.)

I.9. Appendix: Wilderness Areas on the Green Mountain National Forest

Response to Invasive Pests Located on Wilderness Areas on the Green Mountain National Forest

Bottom line: Specific direction regarding treatment for insects and disease is located in the Wilderness Act and in the Forest Service Manual. Treatment for pest infestations in Wilderness is possible using certain management tools such as the Minimum Requirement Decision Guide (MRDG).

- **Section 4(d)(1) of the Wilderness Act of 1964** states that...”such measures can be taken as may be necessary in the control of fire, insects, and diseases, subject to such conditions as the Secretary deems desirable.”
- **The conditions and direction for insect and disease control are specified in the Forest Service Manual:**

Section 2324.12 of the Forest Service Manual (FSM) states “Do not control insect or plant disease outbreaks unless it is necessary to prevent unacceptable damage to resources on adjacent lands or an unnatural loss to the wilderness resource due to exotic pests.”

FSM Section 2324.15 states: “When control of insect and disease is necessary in National Forest Wilderness, it shall be carried out by measures that have the least adverse effect on the wilderness resource and are compatible with wilderness management objectives. Meet the requirements in FSM 2324.04, FSM 2151, FSM 3430, and FSM 1950 in carrying out insect and disease control projects in wilderness. Special care must be taken in the use of chemicals inside wilderness because of the possible effects on the total biological complex. Consider other alternatives to chemical use in the environmental analysis.”

- **The Minimum Requirement Decision Guide (MRDG)** for Wilderness adopted by the Forest Service, Park Service, Bureau of Land Management, and Fish and Wildlife Service addresses two key questions involving the potential treatment of pests in designated Wildernesses and Wilderness Study Areas.
 - (1) Should treatment for the pest be considered in any Wildernesses or Wilderness Study Areas in Vermont and would this action be consistent with the Wilderness Act?**
 - (2) If treatment for the pest is considered, which type(s) and amount of treatment will have the least impact to the Wilderness resource while accomplishing the purpose of the proposed action?**
- The Minimum Requirement Decision Guide (MRDG) outlines six key questions to answer in determining if management action is necessary within wilderness (question #1-above). If the answer to several or all of the questions is “yes”, then management action should be considered.

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- **If the problem/issue is not resolved, or action is not taken, will the natural processes of any Wilderness in Vermont be adversely affected?**
 - **If the issue/problem is not resolved, or action is not taken, will the values of solitude or primitive and unconfined type of recreation be threatened?**
 - **If the issue/problem is not resolved, or action is not taken, will evidence of human manipulation, permanent improvements, or human habitation be substantially noticeable?**
 - **Does addressing the issue/problem or taking action protect the Wilderness as a whole as opposed to a single resource?**
 - **Does addressing this issue/problem or taking action contribute to protection of an enduring resource of wilderness for future generations?**
 - **Is this an issue/problem for reasons other than convenience or cost of administration?**
-
- If a proposal is made to treat the pest in the Environmental Assessment required before any action in the field, then the treatment or combination of treatments (minimum tool) with the least impact on wilderness will be chosen in the proposal.
 - The answer to question #2 constitutes the selection of the “minimum tool” for treatment in wilderness. The selected proposal will include the appropriate minimum tool for wilderness.

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II. Asian Longhorned Beetle Work Plan

The Asian longhorned beetle (ALB), an invasive pest of maple and other hardwoods, is native to East Asia. It was first discovered in North America in 1996, in New York City. It has also been found in Long Island, Chicago, Toronto, New Jersey, Ohio, Boston, and Worcester MA. The insect has been declared eradicated from Chicago, Boston, and New Jersey.

The Worcester infestation is of greatest concern because of its proximity to Vermont (45 miles) and to host woodlands, the length of time it went undetected, and size (Although the infestation boundaries are still undetermined, the quarantine area is currently 110 sq.mi., and over 30,000 infested or susceptible trees have been removed). Long term funding and the continued cooperation of infested communities will be necessary for the eradication effort to be successful.

The USDA Animal and Plant Health Inspection Service (APHIS) and US Forest Service are working with state cooperators to survey for and contain Asian longhorned beetle. A review of Asian longhorned beetle biology and infestation symptoms can be found in a Forest Service Pest Alert at www.na.fs.fed.us/pubs/palerts/alb/alb_pa.pdf. The current extent of infestation in North America is available at: www.aphis.usda.gov/plant_health/plant_pest_info/asian_lhb/alb_maps.shtml.

Asian longhorned beetle has never been detected in Vermont, and is not known to occur in the state.

Impact of Asian longhorned beetle

Asian longhorned beetle poses a significant threat to Vermont's forests. It attacks a variety of native hardwood species, including maple, birch, elm, poplar, and willow. The larval tunneling through the heartwood of host trees makes them prone to breakage, and can eventually kill them. Over one-third of our trees are susceptible to Asian longhorned beetle. There are no known effective natural enemies, and available control tactics are extremely limited.

Currently, all known infestations in North America are under eradication. Eradication requires expensive recurring surveys, removal of all infested trees, insecticide treatment of other hosts, and quarantine enforcement. Early detection greatly improves the odds of success.

II.1. Authorities

Existing Quarantines

- A federal Asian longhorned beetle quarantine, 7 CFR 301.51, provides the authority to conduct the regulatory activities in this plan. An overview is available at: www.aphis.usda.gov/plant_health/plant_pest_info/asian_lhb/regs.shtml
- Other quarantines in effect include the following.
 - Canada: www.inspection.gc.ca/english/plaveg/pestrava/anogla/asialonge.shtml
 - MA: www.massnrc.org/pests/alb/

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Materials Regulated

The following are regulated in the federal quarantine:

- The Asian Longhorned Beetle (*Anoplophora glabripennis*) in any living stage of development.
- Firewood from all hardwood species.
- All host material living, dead, cut, or fallen inclusive of nursery stock, logs, green lumber, stumps, roots, branches, and debris of half inch or more in diameter of the genera listed in Appendix 1. These are *Acer* (maple), *Aesculus* (horse chestnut), *Albizia* (mimosa), *Betula* (birch), *Celtis* (hackberry), *Fraxinus* (ash), *Platanus* (sycamore), *Populus* (poplar), *Salix* (willow), *Sorbus* (mountain ash), *Ulmus* (elm), *Cercidiphyllum japonicum* (katsura), and *Koelreuteria* (golden rain tree).

Regulated Establishments

Establishments placed under regulations for ALB within a quarantined area include landscapers, tree pruning companies, tree removal companies, firewood dealers, pallet distributors, nurseries, sanitation workers, as well as other municipal or community services and associated contractors.

II.2. Agency Roles

Subject Area Specialists

VT Agency of Agriculture, Food, & Markets: Tim Schmalz (program management); Emilie Inoue (survey)

VT Dept of Forests, Parks, & Recreation: Barbara Schultz (program management); Jay Lackey (firewood outreach, survey); Trish Hanson (survey); Danielle Fitzko (community planning)

University of Vermont: Caitlin Cusack (outreach, survey);

US Forest Service: Michael Bohne, Forest Health Protection, Durham, NH

USDA APHIS Plant Protection and Quarantine: Mark Michaelis, Berlin, VT

Federal role

Funds from the US Forest Service and USDA APHIS are currently used for outreach and survey.

Because ALB is regulated by federal quarantine, if it is found in the state, USDA APHIS will confirm initial identifications and the federal regulations will apply.

To date, all known Asian longhorned beetle infestations have been under eradication, and USDA APHIS has been the lead agency. The US Forest Service has conducted research and provided technical assistance and/or funding for restoration, outreach and surveys.

The USDA APHIS New Pest Response Guidelines for Asian Longhorned Beetle are found at http://www.aphis.usda.gov/plant_health/plant_pest_info/asian_lhb/downloads/alb_response_guidelines.pdf

II.3. Incident Management

State response will be through a Unified Incident Command System.

II.4. Actions Prior to Detection

Survey

Survey and reporting guidelines developed by the US Forest Service, USDA APHIS, and the State of Vermont are followed.

Early detection greatly improves the success of eradication efforts. The primary strategy for detection is outreach to general and targeted audiences. In addition, visual surveys have been conducted throughout the state in campgrounds, properties owned by residents of infested areas, targeted communities, and other high risk sites. Improved traps are increasingly helpful in detecting Asian longhorned beetles.

Survey Actions Planned for 2014: Forest Pest First Detectors, school groups, and others are encouraged to conduct Asian longhorned beetle surveys, and submit results in the USDA Beetle Detectives database. We plan to deploy twenty traps in high risk areas.

Exclusion

Nurseries and surrounding areas are inspected annually to check for signs of exotic pests, including Asian longhorned beetle.

Vermont does not have a statewide firewood quarantine. Visitors to State Park campgrounds who bring firewood from outside Vermont receive local firewood in exchange. The out-of-state firewood is collected and destroyed. Out-of-state firewood may not be brought into the Green Mountain National Forest. The Plant Industry Division checks commercially packaged firewood for sources and treatments.

Asian longhorned beetle quarantines cover firewood movement from the infested quarantine zone only. However, emerald ash borer quarantines and other states' and federal restrictions pose additional limits on regional firewood movement.

Exclusion Actions Planned for 2014: As directed by Act 112, rulemaking will be initiated regarding the importation of untreated firewood into the State. Ongoing actions will be continued, including firewood exchange, nursery inspections, and quarantines. We will continue to examine the firewood pathway, including the firewood policy on state lands, and methods to reduce risk of pest introductions through firewood.

Outreach

Outreach activities have been conducted as part of an interagency effort. A variety of audiences have been targeted to increase the odds of early detection and to prevent movement of firewood.

Public information materials available include:

Vermont Invasives: <http://www.vtinvasives.org/invaders/asian-longhorned-beetle>

Asian longhorned beetle website: www.beetlebusters.info/

Vermont Agency of Agriculture: http://agriculture.vermont.gov/plant_pest/plant_weed/plant_pest_survey

Vermont Invasive Forest Pest Update: www.vtfpr.org/protection/albupdate.cfm

Don't Move Firewood website, www.firewood.vt.gov

Outreach Actions Planned for 2014: Ongoing actions will be continued, including the Forest Pest Outreach and Survey Program and updates to the Vermont Invasives website. Forest Pest First Detectors

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will also conduct outreach activities. We encourage any outreach activities which promote continued funding for, or community support of, eradication programs in other states.

Preparedness

Asian longhorned beetle may be successfully eradicated, and may never occur in Vermont. If it is detected, however, pre-planning provides time to coordinate resources and reduce costs.

Preparedness Actions Planned for 2014: Training will be provided to Forest Pest First Detectors in Windham and Chittenden Counties. Community invasive forest pest preparedness plans, which are being developed for emerald ash borer, will be helpful in addressing an Asian longhorned beetle detection.

II.5. Actions Upon Detection

Confirmation of Identification

Suspect insects will be screened when received. Confirmation will be done by the USDA APHIS-PPQ.

Initiate Incident Response

An Asian longhorned beetle detection will require response from a variety of agencies and include local governments. An incident command structure is likely to be initiated.

Emergency Measures

The USDA APHIS PPQ may take emergency measures, as described in the Asian longhorned beetle New Pest Response Guidelines.

These may be supplemented by State of Vermont actions authorized at 6 V. S. A. Chapter 84.

Infested Area Survey

Delimiting surveys will be conducted using currently accepted methods, consulting technical specialists as necessary.

Reporting New Detections

New detections are reported to USDA APHIS.

Outreach

Stakeholders include, but are not limited to:

Landscape Industry: VT Nursery and Landscape Association, Nursery and landscape businesses

Landowners: VT Woodlands Association, The Nature Conservancy, Local private and public landowners, US Fish and Wildlife Service, Green Mountain National Forest

Maple Sugarmakers: VT Maple Sugarmakers' Association

Forest Products Industry: VT Forest Products Association, Local sawmills, loggers, and foresters, Destination markets

Municipalities: Town tree wardens, Conservation Commissions, Planning Commissions, Town officers

Recreation: Arborists, Vermont Campground Association, State and federal campgrounds

Management Options

Eradication: Asian longhorned beetle eradication attempts have been successful in Chicago, Boston, and New Jersey, and are promising in New York and Toronto. The eradication efforts in Worcester County, MA and Ohio are in progress. Eradication is most likely to be successful if the infestation is small.

Quarantine: Federal quarantine restrictions will take effect. Contractor certification and designated disposal sites may be necessary to ensure that woody debris from infested areas is handled properly.

Chemical Treatment: Chemical treatments are effective for individual trees. To date, available treatments must be repeated.

Biological Control: No biological control agents are currently available.

II.6. Funding

Funds from USDA APHIS have been received for Forest Pest Outreach and Survey. Funds may be available from the Northeastern Forest Fire Protection Commission to mobilize survey or eradication crews for initial response.

II.7. Additional Information

Special considerations

Since Asian longhorned beetle is of special concern to the maple industry, UVM's maple specialists will be part of outreach and assistance efforts.

III. Emerald Ash Borer Work Plan

The emerald ash borer (EAB) is a non-native invasive pest of ash. It was first found in North America, in 2002, in southeast Michigan and adjacent Ontario. Infestations have been subsequently detected across the northeastern United States and southeastern Canada, and are now known to occur in 23 states and two Canadian provinces.

The closest infestations to Vermont are in Concord, NH, Berkshire County, MA, New York's Hudson Valley, and 30 miles north of the border in Carignan, Quebec. Infestations were detected for the first time in Massachusetts and Connecticut in 2012 and in New Hampshire in 2013.

Emerald ash borer has never been detected in Vermont, and is not known to occur in the state.

The EAB program in Vermont began in October 2003 and consists of survey, education and outreach, and planning activities. USDA APHIS and the US Forest Service work with states, including Vermont, to survey for and contain EAB.

A review of EAB biology and infestation symptoms can be found in a Forest Service Pest Alert at www.na.fs.fed.us/spfo/pubs/pest_al/eab/eab.pdf. The current extent of infestation in North America is available at: www.emeraldashborer.info/files/MultiState_EABpos.pdf.

Impact of Emerald Ash Borer

EAB poses a significant threat to Vermont's ash resources. It has few natural enemies in North America, and control tactics are limited. If left unchecked, it will continue to infest and kill ornamental and forest trees, resulting in high removal costs, economic losses, and impacts on the forest ecosystem and community landscapes.

Ash is an important component of Vermont's forest. There are over 100 million ash trees representing over 6% of the state's hardwood growing stock trees. It is commonly planted as a street tree and in commercial developments because of its tolerance of poor site conditions. Ash is a prolific seeder and readily establishes along fence rows, rights-of-way, and riparian areas.

III.1. Authorities

Existing Quarantines

The Federal Emerald Ash Borer (EAB) Quarantine, 7 CFR 301.53, provides the authority to USDA APHIS to conduct federal interstate regulatory actions.

[USDA APHIS Emerald Ash Borer - Federal Regulations and Quarantine Notices](#)

To regulate intrastate movement, the State of Vermont would need to issue a parallel quarantine.

Examples of other quarantines in effect include the following:

Canada: www.inspection.gc.ca/english/plaveg/pestrava/agrpla/agrplae.shtml

NY: <http://www.dec.ny.gov/animals/47761.html>

NH: <http://www.agriculture.nh.gov/publications-forms/documents/2013-05-emerald-ash-quarantine.pdf>

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Materials Regulated

The following are regulated in the federal quarantine:

- The emerald ash borer (all life stages).
- Firewood: all non-coniferous species.
- Nursery stock, green lumber, and other material living, dead, cut or fallen including logs, stumps, roots, branches, and composted and uncomposted chips of the genus *Fraxinus*.

III.2. Agency Roles

Subject Area Specialists

VT Agency of Agriculture, Food, & Markets: Tim Schmalz (program management); Emilie Inoue (survey)

VT Dept of Forests, Parks, & Recreation: Barbara Schultz (program management); Lars Lund (incident response); Trish Hanson (survey); Jim Esden (outreach); Danielle Fitzko (community planning); Jay Lackey (survey)

US Forest Service: Nate Siegert, Forest Health Protection, Durham, NH

USDA APHIS Plant Protection and Quarantine: Mark Michaelis, Berlin, VT

University of Vermont: Caitlin Cusack (outreach, community planning)

Federal role

Funds from the US Forest Service and USDA APHIS are used for outreach, survey, and planning.

Because EAB is regulated by federal quarantine, if it is found in the state, USDA APHIS will confirm initial identifications and federal regulations will apply.

In addition, federal agencies may provide technical assistance and/or funding, conduct surveys, and assist with control activities in cooperation with the Vermont Department of Forests, Parks and Recreation and the Vermont Agency of Agriculture.

The USDA APHIS Program Manual for emerald ash borer is found at

www.aphis.usda.gov/import_export/plants/manuals/domestic/downloads/emerald_ash_borer_manual.pdf

The US Forest Service Integrated Program Strategy for Reducing the Adverse Impacts of Emerald Ash Borer throughout the Northeastern Area is found at www.na.fs.fed.us/pubs/eab/eab_strategy.pdf

III.3. Incident Management

State response will be through a Unified Incident Command System.

III.4. Actions Prior to Detection

Survey

Survey and reporting guidelines developed by the Forest Service and APHIS are followed.

Multiple strategies are used for EAB detection. These include outreach to general and targeted audiences, statewide purple trap surveys, biosurveillance, girdled trap tree monitoring, and visual

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surveys in other high risk sites. A Forest Pest First Detectors program has been fully implemented enhance public awareness and our ability to follow up on pest reports.

Survey Actions Planned for 2014: An intensive purple trap survey will be coordinated by USDA APHIS. Girdled trap tree surveys will be conducted at high risk sites. In addition, this survey method will be available for use by landowners and foresters. Biosurveillance monitoring will continue with the assistance of trained volunteers. Forest Pest First Detectors will conduct screenings and surveys as needed.

Exclusion

Nurseries and surrounding areas are inspected annually to check for signs of exotic pests, including EAB.

Under the current federal quarantine, ash products from regulated areas can be moved into Vermont only if the shipper and the receiving facility have compliance agreements with USDA APHIS. In light of recent detections of EAB nearby, we have increased outreach to the wood industry, and are assisting facilities that wish to enter into compliance agreements.

Vermont does not have a statewide firewood quarantine. Visitors to State Park campgrounds who bring firewood from outside Vermont receive local firewood in exchange. The out-of-state firewood is collected and destroyed. Out-of-state firewood may not be brought into the Green Mountain National Forest. The Plant Industry Division checks commercially packaged firewood for sources and treatments. Emerald ash borer quarantines cover firewood movement from the infested quarantine zone only. However, other states' and federal restrictions pose additional limits on regional firewood movement.

Exclusion Actions Planned for 2014: As directed by Act 112, rulemaking will be initiated regarding the importation of untreated firewood into the State. We will continue to monitor the relevance and potential impact of existing regulations to Vermont. Ongoing actions will be continued, including working with the wood industry on quarantine compliance, nursery inspections and firewood exchange.

Outreach

Outreach activities have been conducted as part of an interagency effort. A variety of audiences have been targeted to increase the odds of early detection and to prevent movement of firewood. Forest Pest First Detectors conduct outreach in their communities. In 2013, targeted outreach was conducted for utilities, municipal highway staff, and the Vermont AOT.

Public information materials available include:

Vermont Invasives: <http://www.vtinvasives.org/invaders/emerald-ash-borer>

Emerald Ash Borer website: www.emeraldashborer.info

Vermont Agency of Agriculture: http://agriculture.vermont.gov/plant_pest/plant_weed/plant_pest_survey

Vermont Invasive Forest Pest Update: <http://www.vtfpr.org/protection/forestpestsfrontpage.cfm>

Outreach Actions Planned for 2014: During the week leading up to Arbor Day, an “Ash Tree Awareness Week” engaged the media and mobilized volunteers to organize outreach events in their own communities <http://www.vtinvasives.org/ashawarenessweek>. Ongoing actions will be continued, including updates to the Vermont Invasives website and Forest Pest First Detectors activities.

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Preparedness

By addressing specific issues before EAB arrives, the cost and losses associated with an infestation can be spread over a longer period of time, reducing the impacts to communities and landowners. Early planning provides time to coordinate resources and reduce costs.

A multi-agency EAB Response Exercise has been conducted to test Vermont's Invasive Pest Response Plan and an emergency quarantine template has been drafted.

In cooperation with UVM Extension, we continue to work with Vermont towns in developing Community Preparedness Plans <http://www.vtinvasives.org/tree-pests/community-preparedness>. In 2013, 13 communities were awarded incentive grants, and four completed draft plans.

Preparedness Actions Planned for 2014: Assistance will continue for communities interested in developing invasive forest pest preparedness plans, including the mini-grant program. The goal is to have plans in place in at least 20 communities. We will participate in a multi-agency ICS training provided by APHIS PPQ, and continue to update incident management plans. A safety training will be provided to qualified sawyers who may participate in delineation surveys. We will also continue pre-planning for implementing a quarantine and potential use of pesticides and biocontrols.

III.5. Actions Upon Detection

Confirmation of Identification

Suspect insects will be screened when received. Confirmation will be done by the USDA APHIS-PPQ. At this time, double confirmation of the initial state detections is required, so some delay is expected.

Initiate Incident Response

An emerald ash borer detection will require response from a variety of agencies and include local governments. An incident command structure is likely to be initiated.

Emergency Measures

The USDA APHIS PPQ may take emergency measures, as described in the Emerald Ash Borer Program Manual www.aphis.usda.gov/import_export/plants/manuals/domestic/downloads/emerald_ash_borer_manual.pdf.

These may be supplemented by State of Vermont actions authorized at 6 V. S. A. Chapter 84.

Infested Area Survey

Delimiting surveys will be conducted using currently accepted methods, consulting technical specialists as necessary.

Reporting New Detections

New counties are reported to USDA APHIS.

Outreach

Stakeholders include, but are not limited to:

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Landscape Industry: VT Nursery and Landscape Association, Arborists, Pesticide applicators, Nursery and landscape businesses, Utilities

Landowners: VT Woodlands Association, The Nature Conservancy, Local private and public landowners, US Fish and Wildlife, Green Mountain National Forest

Forest Products Industry: VT Forest Products Association, Local sawmills, loggers, truckers, kilns, firewood and mulch producers/distributors, and foresters, Destination markets, woodworkers, artisans, portable mill owners

Municipalities: Town tree wardens, Road Crews, Conservation Commissions, Planning Commissions, Town officers

Publics: Media, homeowners, natural resource organizations

Recreation: Vermont Campground Association, State and federal campgrounds, tourists, outdoor recreationists

Management Options

Eradication: Emerald ash borer eradication attempts have been unsuccessful. This strategy is unlikely to be attempted unless the introduction was recent, the source known, and the odds of success very high.

Quarantine: Federal quarantine restrictions will take effect. Vermont may also initiate county-based or other internal restrictions. Compliance agreements may be established with shippers, sawmills and other receiving facilities, to allow movement of ash wood products. Contractor certification and designated disposal sites may be initiated to ensure that woody debris from infested areas is handled properly.

Population Reduction: Reducing the ash component in communities and woodlands, and establishing sink trees, is thought to slow the spread of emerald ash borer. Results from other efforts will be available to inform this option.

Chemical Treatment: Chemical treatments are effective for individual trees. To date, available treatments must be repeated, so are suitable only for high value trees and/or to delay tree removal.

Biological Control: Parasitoids have been released in infested areas. Environmental impacts must be reviewed, and permits received, before any biocontrol release.

Utilization and Marketing

The Department of Forests, Parks, and Recreation will update forest management guidelines for landowners near the infested area, including information on remaining in compliance with Use Value Appraisal plans and Heavy Cut regulations. The department will also work with biomass users, firewood processors, tree care firms, sawmills, pulp mills, mulch manufacturers and others to accommodate potential sudden increases in harvested ash.

Environmental Assessment

In addition to assessment activities outlined in Vermont's Invasive Forest Pest Action Plan, where management activities occur in wetlands such as those where green and black ash are present, strategies should be reviewed by the Department of Environmental Conservation Wetlands Section.

III.6. Funding

Special funds have been obligated to Vermont, by the US Forest Service, for EAB preparedness including community planning and Forest Pest First Detector activities and for biosurveillance and other surveys.

Funds from USDA APHIS will be used for purple trap surveys. Additional funds have been received for Forest Pest Outreach and Survey.

Funds may be available from the Northeastern Forest Fire Protection Commission to mobilize survey crews for initial response.

III.7. Additional Information

Special considerations

With the rapid expansion of emerald ash borer, the risk to Vermont is changing rapidly. Research and on-the-ground experience are also rapidly increasing what is known about this pest. Response plans will change accordingly.

IV. Hemlock Woolly Adelgid Work Plan

The hemlock woolly adelgid (HWA) is an insect from Asia that can kill hemlock trees by sucking nutrients from the twigs. This insect was first observed in Virginia in the 1950s and has spread through much of the eastern United States, causing widespread tree mortality and decline. HWA was first detected in Vermont in 1990, on infested tublings planted in Stockbridge, VT. In 2004 and 2006, infested trees were shipped to Vermont nurseries and delivered or outplanted in 35 Vermont towns. All but 14 of these trees were located and destroyed.

Natural hemlock woolly adelgid spread into Vermont was first detected in 2007. It is currently known to occur in fifteen Windham County towns, and the town of Pownal in Bennington County. In February 2014, it was detected in the town of Springfield, in Windsor County, just over the county line from a previous find in Rockingham.

The purpose of this action plan is to protect native hemlocks by implementing an integrated Slow-The-Spread program: exclusion from uninfested areas, eradication of outlying populations, suppression activities at the leading edge, and integrated management in the infested area.

The current extent of infestation in North America is available at: na.fs.fed.us/fhp/hwa/maps/distribution.shtm

Impact of Hemlock Woolly Adelgid

Eastern hemlock occurs statewide except at elevations generally over 2,000 feet, and accounts for over 5% of Vermont's trees. It is one of Vermont's most important sawlog species by volume. Eastern hemlock is important to the nursery trade, and is widely planted as a landscape tree. Carolina hemlock is occasionally planted in the landscape.

Hemlock is a long-lived and shade-tolerant species, and is important in many of Vermont's upland and wetland natural communities. It is the critical species in many deer wintering areas, especially in central and southern Vermont, increases stream insect diversity and flow stability, and reduces stream temperatures.

We don't know the impact this insect will have as it moves north into colder climates like Vermont's. There has been limited adelgid survival in hardiness zones colder than Zone 5b. Mortality from hemlock woolly adelgid has been variable. In the southeast, it can kill trees within 4 years of initial infestation. In southern and eastern New England, some infested stands in the region exhibit no mortality, while others have had mortality rates as high as 95%. Many surviving trees lose foliage, which reduces their landscape and wildlife habitat value and increases the risk of future mortality.

IV.1. Authorities

Existing Quarantines

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There is no federal quarantine for this insect.

A Vermont quarantine controls movement from regulated counties (Appendix 8.1):

http://agriculture.vermont.gov/sites/ag/files/pdf/plant_protection_weed_management/quarantines/HWA_Quarantine_Text.pdf

Quarantines in effect in the region include the following (a summary is in Appendix 8.2):

Canada - www.inspection.gc.ca/english/plaveg/protect/dir/d-07-05e.shtml

NH - <http://www.nhdfl.org/library/pdf/Forest%20Health/hwa-quarantine2012.pdf>

ME - http://www.maine.gov/dacf/mfs/forest_health/quarantine_information.html#hwa

Information about other state quarantines can be found at: www.nationalplantboard.org/laws/index.html

Materials Regulated

Vermont's quarantine regulates hemlock seedlings, hemlock nursery stock, hemlock logs, hemlock lumber with bark and chips.

IV.2. Agency Roles

Subject Area Specialists

VT Agency of Agriculture, Food, & Markets: Tim Schmalz

VT Dept of Forests, Parks, & Recreation: Barbara Schultz (program management), Jim Esden (survey), Trish Hanson (identification)

US Forest Service: Ryan Hanavan, Forest Health Protection, Durham, NH;

University of Vermont: Margaret Skinner, Bruce Parker, (entomopathogenic fungi); Kimberly Wallin (insect predators)

Federal Role

The federal role is generally advisory. Special funds from the US Forest Service are used for survey and suppression. The US Forest Service maintains the publication entitled "List of Counties and States with Known Hemlock Woolly Adelgid Infestations"

A summary of the US Forest Service Hemlock Woolly Adelgid Initiative is at:

http://www.na.fs.fed.us/fhp/hwa/pubs/other_info/hwa_mgt_plan.pdf

IV.3. Incident Management

Response to hemlock woolly adelgid is being conducted as part of normal agency operations.

IV.4. Actions Prior to Detection

(These are actions in uninfested areas of Vermont.)

Survey

The primary strategy for early detection of any newly infested areas is outreach to general and targeted audiences. Forest and landscape tree surveys are conducted by FPR staff and trained volunteers.

To detect spread on live plants, nurseries, landscaping operations, and plant retailers are inspected by the AAFM.

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To detect spread on wood products, facilities accepting hemlock logs or chips are surveyed when entering into compliance agreements.

Survey Actions Planned for 2014: With the University of Vermont Extension we will continue to maintain the Forest Pest First Detectors program to help recruit, train, and organize volunteers.

Exclusion

Hemlock nursery stock imported under the quarantine must be inspected and released by the AAFM Plant Industry Section prior to sale or installation.

By quarantine, sawmills and other processing facilities require a compliance agreement in order to accept hemlock logs or chips from infested counties. Eight compliance agreements are currently in effect.

Exclusion Actions Planned for 2014: Routine nursery inspections will continue. Efforts to limit mail order and internet sales of hemlock into Vermont are ongoing. We plan to review our quarantine, and make changes as necessary.

Public Information Materials

Vermont Invasives: <http://www.vtinvasives.org/invaders/hemlock-woolly-adelgid>

VT Dept of Forests, Parks and Recreation: www.vtfpr.org/protection/idfrontpage.cfm

Vermont Agency of Agriculture: http://agriculture.vermont.gov/plant_pest/plant_weed/plant_pest_survey

US Forest Service: www.na.fs.fed.us/fhp/hwa/

‘Hemlock Woolly Adelgid in Vermont – Recommendations for Landowner Response’ 8.5x11 leaflet
http://www.vtfpr.org/protection/documents/VTFPR_HWAinVT_RecommendationsforLandownerResponse.pdf

Public Information Actions Planned for 2014: Material about hemlock woolly adelgid will be updated in the Vermont Invasives website.

IV.5. Actions Upon Detection

(These are actions in infested areas of Vermont.)

Confirmation of Identification

University of Vermont entomologists have provided new county confirmations.

Emergency Measures

Emergency measures may be appropriate if outlying infestations are detected or if quarantine efforts are determined to be inadequate. Eradication may be appropriate for isolated introductions. A sample eradication order is in Appendix 8.3.

Delineation Survey

By verbal agreement with the states of Maine and New Hampshire, at least five sites will be surveyed in each town abutting an infested town.

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Delineation Survey Actions Planned for 2014: Surveys will be done by staff and trained volunteers. Volunteers will be actively solicited in southern towns and counties through the Forest Pest First Detectors program.

Reporting New Detections

New counties are reported to the US Forest Service, Forest Health Protection, Morgantown, WV, and the National Agricultural Pest Information System (NAPIS).

Reporting Actions Planned for 2014: New infested counties will be reported to the US Forest Service by December 1st.

Outreach

Stakeholders include, but not limited to:

Landscape Industry: VT Nursery and Landscape Association, Nursery and landscape businesses

Fish & Wildlife: VT Dept of Fish & Wildlife, VT Federation of Sportsmen, VT Institute of Natural Science, Audubon Vermont, Connecticut River Watershed Council

Municipalities: Town tree wardens, Conservation & Planning Commissions, Town officers/Selectboards

Landowners: VT Woodlands Association, VT State Parks, Nature Conservancy, US Fish & Wildlife Service, Silvio Conte National Wildlife Refuge, Green Mountain National Forest, Local private and public landowners

Forest Products Industry: VT Forest Products Association, Sawmills, loggers, and foresters, Destination markets

Outreach Actions Planned for 2014:

- Ongoing efforts to publicize plans for slow-the-spread management and accept comment from natural resource and pest specialists, stakeholders, and the public.
- Training of volunteers to assist in providing information to the public.
- Notice of any proposed control measures, to be undertaken by the state, in a local newspaper (10 V.S.A. §2662).

Management Options

In addition to quarantine and eradication, management options to be considered include:

Predator Release: The beetle *Laricobius nigrinus* has been released at two sites in southeastern Windham County and one site in Bennington County. Other predator species may become available.

Predator Release Actions Planned for 2014: No additional releases are currently planned for 2014. We will be monitoring the previous release sites. We will consider other predator species, as they become available in the future, and cooperate with investigations into predator biology.

Entomopathogenic Fungi: Research projects are ongoing at the University of Vermont.

Entomopathogenic Fungi Actions Planned for 2014: We will continue to provide assistance to a project investigating a native *Myriangium* fungus.

Silviculture: Hemlock management in infested areas can help reduce tree mortality. Pre-infestation salvage is not recommended. Mortality from this insect is not sudden.

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Silviculture Actions Planned for 2014: We will complete the preparation of Monitoring and Management Strategies for resource managers in northern New England, in collaboration with the states of Maine, New Hampshire, and the US Forest Service.

Chemical Control: Foliar or trunk sprays and trunk or soil injections are effective in protecting individual trees. Foliar sprays generally provide more rapid control, systemic treatments are generally longer-lasting. Horticultural oil sprays have low environmental impacts, but have no residual activity.

Chemical Control Actions Planned for 2014: Chemical treatments will be considered for eradication or as part of integrated pest management strategies on state properties.

Sanitation: Infested material can be destroyed by burning with a valid Permit to Kindle Fire, burying, or tarping with clear plastic.

Sanitation Actions Planned for 2014: Sanitation actions may be conducted if new locations outside the infested area are detected.

Quarantine: By quarantine, hemlock logs and chips from infested counties can only be shipped, within Vermont, to sites with a compliance agreement. Hemlock nursery stock from infested counties can only be shipped to other sites within the county. By statute, infested trees cannot be offered for sale (6 V.S.A. § 4027).

Quarantine Actions Planned for 2014: If there are quarantine changes in Vermont or other New England states, information on regional quarantines will be updated and posted.

Environmental Assessment

A project-specific Environmental Assessment was prepared in 2007. A programmatic assessment, to be applicable until amended, will be prepared to meet any requirements of the National Environmental Policy Act before any state-sponsored chemical control activities are implemented.

Environmental Assessment Actions Planned for 2014: We will identify high priority sites incorporating risk maps, critical habitats, urban tree canopies, and other criteria. We are monitoring winter survival, and working with Harvard University on an impact study. If chemical treatment projects are proposed, the environmental assessment will be updated, and an operations and safety plan will be prepared. The use will be in compliance with all label restrictions.

Follow-up

All known infestations are tracked on a regional database, including treatments made and current status.

IV.6. Funding

Special funds have been provided by the US Forest Service for Hemlock Resource Protection in Northern New England and for monitoring of hemlock woolly adelgid and its predators.

IV.7. Additional Information

Special Considerations

Elongate hemlock scale is also spreading north, and has been detected in Bernardston, MA. It has also been introduced into Vermont on nursery stock, but is not known to be established in the state.

IV.8. Appendices

Hemlock Woolly Adelgid – Joint Quarantine No. 2

Existing quarantines, partial summary

Sample eradication order

Detection survey methods

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Appendix IV.8.1. Hemlock Woolly Adelgid – Joint Quarantine No. 2

STATE OF VERMONT
Agency of Agriculture, Food & Markets
and
Department of Forests, Parks and Recreation
Hemlock Woolly Adelgid - Joint Quarantine No.2

Quarantine Regulations

Section I.	Statement of Concerns
Section II.	Definitions
Section III.	Statutory Authority
Section IV.	Specific Purpose and Factual Basis
Section V.	Hemlock Woolly Adelgid Exterior Quarantine

Section I: Statement of Concerns

Whereas Hemlock Woolly Adelgid (*Adelges tsugae* Annand) has been found to cause mortality of Eastern Hemlock (*Tsuga canadensis*);

Whereas Hemlock Woolly Adelgid is established in Southern New England and has shown rapid movement northward;

Whereas this pest has been found to be difficult to control in natural Hemlock stands;

Whereas Hemlock is a very valuable component of Northern New England's forest for both timber and wildlife as well as a high value landscape ornamental.

Therefore, the State of Vermont is hereby establishing this exterior plant quarantine against Hemlock Woolly Adelgid for the protection of these valuable resources.

Section II: Definitions

1. "Bark" means the tissue of woody stem outside cambium.
2. "Hemlock" means all the species within the genus, *Tsuga*.
3. "Compliance Agreement" means the contract between State of Vermont and lumber mills to allow movement of Hemlock.
4. "Hemlock Woolly Adelgid" means the insect known as Hemlock Woolly Adelgid, *Adelges tsugae* Annand, in the order Homoptera and family Adelgidae.

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5. "Nursery Stock" means all woody or herbaceous shrubs, trees, plants and vines, including bulbs and rhizomes as well as buds, grafts, scions and other parts capable of propagation whether wild, cultivated or grown under artificial covering or artificial conditions. This definition does not include cut flowers or seeds.
6. "Lumber" shall include sawed timber.
7. "Logs" means the main stem of a tree including smaller sections used for pulp.

Section III: Statutory Authority.

The statutory authority for these regulations is 6 V.S.A., Chapter 84 'Pest Survey, Detection and Management'

Section IV: Specific Purpose and Factual Basis

The specific purpose of these regulations is to protect Vermont's Hemlock resource by preventing the introduction of Hemlock Woolly Adelgid into Vermont and its spread within the State.

The Agency of Agriculture, Food, and Markets and Department of Forests, Parks and Recreation have determined that this exterior quarantine is necessary based on the following facts:

1. The Hemlock Woolly Adelgid is an introduced species native to Asia, and a serious pest of Eastern Hemlock in many Eastern States.
2. This insect feeds mainly on the young branches by inserting its piercing and sucking mouthparts and removing sap.
3. This feeding retards or prevents tree growth, causes needles to discolor and drop prematurely, kills branches, generally weakens, disfigures and causes tree mortality.

Section V: Hemlock Woolly Adelgid Exterior Quarantine.

A quarantine is established against the following pest and possible carriers.

- A. Pest. Hemlock Woolly Adelgid (*Adelges tsugae* Annand).
- B. Area Under Quarantine. In the Eastern United States, the counties included in the USDA Forest Service's publication entitled "List of Counties and States with Known Hemlock Woolly Adelgid Infestations" dated December 2003, and any subsequent lists published hereafter.

In western United States, the State of Alaska, the State of California, the State of Oregon and the State of Washington. Also the province of British Columbia in western Canada.

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- C. Regulated Articles. Hemlock seedlings, hemlock nursery stock, hemlock logs, hemlock lumber with bark and chips.
- D. Restrictions. All regulated articles are prohibited entry into the State of Vermont except as specifically allowed and conditioned below.
1. Hemlock seedlings and nursery stock originating from or having previously been held in an area under quarantine are prohibited entry into Vermont.
 2. Hemlock seedlings and nursery stock from non-quarantined areas shipped into Vermont must be accompanied by a State Phytosanitary Certificate, or a Certificate of Origin, indicating the number and type of regulated articles, and attesting to the fact that the regulated articles:
 - a. originated from a non-quarantined area;
 - b. non-quarantined areas adjacent to quarantined counties are annually surveyed and found negative for Hemlock Woolly Adelgid by State Plant Protection Agencies.
 - c. have not been held in an area under quarantine; and
 - d. have not been exposed to regulated articles from quarantined areas.

A copy of the State Phytosanitary Certificate or Certificate of Origin must be signed by a plant regulatory official in the originating state and upon issuance must be faxed to the Agency of Agriculture, Plant Protection Section, at (802) 241-3008 or such other fax number as the Agency may from time to time publish. A copy must also be mailed to the Vermont Agency of Agriculture, Laboratory Building, Plant Protection Section, 103 South Main Street, Waterbury, VT 05671-0101 within 3 days of issuance.

The hemlock seedlings and nursery stock may not be sold or further distributed unless a written release is issued by the Vermont Agency of Agriculture.

3. Hemlock seedlings and nursery stock which have been transported through an area under quarantine are prohibited entry into Vermont except in accordance with the following conditions:
 - a. the vehicle transporting the regulated articles must transit the area under quarantine without stopping, except for refueling;
 - b. the regulated articles were not off-loaded in the area under quarantine; and
 - c. no regulated articles were added to the shipment in the quarantined area.

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4. Hemlock logs, hemlock lumber with bark and chips are admissible provided that said material is only shipped to pre-approved sites within Vermont where compliance agreements are in effect. If said material is shipped to other sites, it must be accompanied by a certificate issued by the Departments of Agriculture or Forestry of the state of origin affirming:
 - a. originated from a non-quarantined area;
 - b. non-quarantined areas adjacent to quarantined counties are annually surveyed and found negative for Hemlock Woolly Adelgid by State Plant Protection Agencies.
 - c. have not been held in an area under quarantine; and
 - d. have not been exposed to regulated articles from quarantined areas.

A copy of the State Phytosanitary Certificate or Certificate of Origin must be signed by a plant regulatory official in the originating state and upon issuance must be faxed to the Agency of Agriculture, Plant Protection Section, at (802) 241-3008 or such other fax number as the Agency may from time to time publish. A copy must also be mailed to the Vermont Agency of Agriculture, Laboratory Building, Plant Protection Section, 103 South Main Street, Waterbury, VT 05671-0101 within 3 days of issuance.

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Appendix IV.8.2. Partial Summary of Quarantine Restrictions

Partial Summary of Quarantine Restrictions on Hemlock Wood Products (Updated June 2014)

Location	Regulated Hemlock Wood Products	Area Under Quarantine	Area Movement is Restricted Into	Wood Products from Quarantined Area	Wood Products from Non-Quarantined Area
Maine	Chips with top material (branches and/or needles), Uncomposted bark with top material (branches and/or needles).	Originating or held in USFS List of Counties or quarantined area in Maine	Non-quarantined areas in the state of Maine	Only to sites within Maine that are preapproved by the Maine Forest Service and that have a compliance agreement with the Maine Forest Service.	None
New Hampshire	Any wood products with bark such as logs, lumber, chips and uncomposted bark	Originating or held in Counties outside NH, or areas within NH, known to be infested	From other states: Into state Within NH: into non-infested areas.	To preapproved sites with a Compliance Agreement or with a Phytosanitary certificate copied to NHDRED.	None
Canada	Forest products with bark attached such as logs, bark chips, wood mulch with bark, and firewood	From states as listed by CFIA	Into Canada	Into Regulated Areas: Shipping documents with state of origin, destination, and species. Into Non-regulated Areas: Phytosanitary Certificate with declaration that material is from an area that HWA is not known to occur based on surveys or is heat treated; OR Permit to Import and receiving facility is registered in HWA Compliance Program	Shipping documents with state of origin, destination, and species.
Vermont	Logs, lumber with bark, chips	Originating or held in USFS List of Counties	Into state	To site with compliance agreement	To site with compliance agreement OR Proof of Origin including statement that counties adjacent to quarantined counties are surveyed
New York	None				
Massachusetts	None				

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Partial Summary of Quarantine Restrictions on on Hemlock Plants (Updated June 2014)

Location	Regulated Hemlock Plants	Area Under Quarantine	Area Movement is Restricted Into	Hemlock Plants from Quarantined Area	Hemlock Plants from Non-Quarantined Area
Maine	Rooted plants	Originating or held in USFS List of Counties or quarantined area in Maine	Non-quarantined areas in the state of Maine	Allowed only if treated	With phytosanitary certificate or Certificate of Origin
New Hampshire	Nursery stock	Originating or held in Counties outside NH, or areas within NH, known to be infested	From other states: Into state Within NH: into non-infested areas.	Only with a variance from NHDAMF. Must be held for one year in an approved enclosure.	Phytosanitary certificate or Certificate of Origin to NHDAMF
Canada	Plants for Planting	From states as listed by CFIA	Into Canada	Into Regulated Areas: Shipping documents with state of origin, destination, and species. Into Non-regulated Areas: Permit to Import and Phytosanitary Certificate with declaration that material is from an area that HWA is not known to occur based on surveys OR Produced by an approved grower	Shipping documents with state of origin, destination, and species.
Vermont	Seedlings and nursery stock	Originating or held in USFS List of Counties	Into state	Not allowed	Phytosanitary certificate or Certificate of Origin to VT Agency of Agriculture
New York	None				
Massachusetts	None				

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Appendix IV.8.3. Sample Eradication Order

Eradication Order
Hemlock Woolly Adelgid

6 V.S.A. § 1033 authorizes the Secretary of Agriculture, Food and Markets and the Commissioner of the Department of Forests, Parks and Recreation to institute a plan of eradication “[w]hen the Secretary determines that a new injurious plant pest exists within the state or that an established pest requires control and the nature of the pest dictates immediate action, he or she may proceed with a plan of eradication or suppression.”

6 V.S.A. § 1031 requires that the Secretary and the Commissioner “shall cooperate with each other on jointly operated projects to avoid duplication of efforts or duties,” and pursuant to 6 V.S.A. § 1032 the Secretary may, “[e]xcluding private domiciles and cartilage, enter any premises, public or private, as may be necessary to carry out the provisions of this chapter.”

Pursuant to 6 V.S.A. § 1034 the Secretary and the Commissioner have established a joint quarantine on the importation into Vermont of the Hemlock Woolly Adelgid and the importation of hemlock materials from quarantined states.

Hemlock Woolly Adelgid and hemlock materials have been recently imported into Vermont in violation of the quarantine.

Pursuant to the above authority, the Secretary and the Commissioner hereby declare and institute an eradication plan for the control and suppression of certain imported hemlock trees that are or which could be potentially infested with the Hemlock Woolly Adelgid. Such plan includes the removal and destruction of hemlock trees from nurseries and private property, and subsequent inspection surveys for a period of five years. In executing this plan, it has been determined that hemlock trees obtained from _____ were purchased by and planted on the property of _____. Such trees must be removed and destroyed, and access to the premises is authorized for follow up inspection surveys of any remaining hemlocks for a period of 5 years.

As the State of Vermont is acting under the imposed quarantine any claims for compensation to seek redress should be referred to the suppliers of the trees.

Authorized by: _____ this ____ day of _____,

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